Complete Summary

GUIDELINE TITLE

Growth, body composition, and metabolism.

BIBLIOGRAPHIC SOURCE(S)

New York State Department of Health. Growth, body composition, and metabolism. New York (NY): New York State Department of Health; 2004. 25 p. [24 references]

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

- Human immunodeficiency virus (HIV) infection
- HIV- and antiretroviral therapy-associated disturbances in growth, body composition and metabolism including:
  - Growth abnormalities
  - Neuroendocrine disorders
  - Gastrointestinal infections and malabsorption
  - Lipodystrophy and abnormalities of lipid metabolism
  - Abnormalities of glucose metabolism
  - Bone disorders

GUIDELINE CATEGORY

Evaluation
Management

Risk Assessment
Screening

CLINICAL SPECIALTY

Allergy and Immunology
Endocrinology
Family Practice
Gastroenterology
Infectious Diseases
Nutrition
Pediatrics

INTENDED USERS

Advanced Practice Nurses
Dietitians
Health Care Providers
Physician Assistants
Physicians
Public Health Departments

GUIDELINE OBJECTIVE(S)

To develop guidelines for management of disturbances in growth, body composition, and metabolism in human immunodeficiency virus (HIV)-infected children and adolescents

TARGET POPULATION

Human immunodeficiency virus (HIV)-infected children and adolescents with disturbances in growth, body composition, and metabolism

INTERVENTIONS AND PRACTICES CONSIDERED

Evaluation/Screening/Risk Assessment

1. Nutritional and dietary assessment
2. Weight and height (or length) measurements and body composition measurements
3. Assessment of potentially reversible causes of malnutrition
4. Thyroid function tests for patients with unexplained growth failure
5. Screening for gastrointestinal infection and malabsorption
6. Screening serum cholesterol, triglycerides, low-density lipoprotein, and high-density lipoprotein cholesterol in children initiating highly-active antiretroviral therapy (HAART)
7. Screening for risk factors for diabetes mellitus

Management

1. Dietary/nutritional counseling

2. Increasing total caloric intake and providing nutritionally balanced caloric intake
3. Ensuring optimal efficacy of the antiretroviral (ARV) regimen
4. Multivitamin and mineral supplements
5. Anabolic agents (prescribed in consultation with a pediatric HIV specialist)
6. Referral to an endocrinologist
7. Consultation with a pediatric gastroenterologist for diet adjustment in patients with gastrointestinal infections and malabsorption
8. Management of abnormal cholesterol using dietary, behavioral, and pharmacologic interventions

Note: Guideline developers discussed the use of appetite stimulants to improve dietary intake, however they did not offer recommendations.

MAJOR OUTCOMES CONSIDERED

- Nutritional status
- Growth, body composition, and metabolism
- Safety and efficacy of treatment
- Adverse effects of treatment

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

Not stated

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus (Committee)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Not applicable

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The Human Immunodeficiency Virus (HIV) Guidelines Program works directly with committees composed of HIV Specialists to develop clinical practice guidelines. These specialists represent different disciplines associated with HIV care, including infectious diseases, family medicine, obstetrics and gynecology, among others. Generally, committees meet in person 3 to 4 times per year, and otherwise conduct business through monthly conference calls.

Committees meet to determine priorities of content, review literature, and weigh evidence for a given topic. These discussions are followed by careful deliberation to craft recommendations that can guide HIV primary care practitioners in the delivery of HIV care. Decision making occurs by consensus. When sufficient evidence is unavailable to support a specific recommendation that addresses an important component of HIV care, the group relies on their collective best practice experience to develop the final statement. The text is then drafted by one member, reviewed and modified by the committee, edited by medical writers, and then submitted for peer review.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Not stated

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Clinicians should perform an annual nutritional assessment as part of routine care for all human immunodeficiency virus (HIV)-infected children

Elements of a Nutritional and Dietary Assessment

- Anthropometric data, including height, weight, and head circumference
- Biochemical data with lipid panel and albumin or pre-albumin
- Medications with nutritional side effects and interactions with foods
- Appetite and intake (24-hour recall or 3-day record)
- Family food access issues
- Social history/behavior issues/cultural practices
- Oral health
- Supplement use (including multivitamins, herbal therapies, teas)
- Activity level
- Food allergies
- Medical diagnoses, symptoms, and HIV classification
- Developmental problems

Growth Abnormalities in Perinatally HIV-Infected Children and Adolescents

Clinicians should obtain weight and height (or length) measurements every 3 to 4 months until children have reached full adult height.

Clinicians should assess children who are experiencing suboptimal growth for potentially reversible causes of poor growth.

Refer to Figure 1 in the original guideline document for causes of malnutrition

Restoration of Growth

Energy Intake

Clinicians should carefully evaluate the dietary intake of children with growth failure or wasting syndrome, and dietary counseling should be provided by a health professional with expertise in pediatric nutrition.

Clinicians should increase total caloric intake as needed for growth, and potential causes of growth failure should be treated when possible.

Caloric intake should be nutritionally balanced: 50 to 55% of total calories from carbohydrate; 15 to 20% from protein; and 20 to 30% from fat (with less than 10% of total calories as saturated fatty acids).

Refer to Table 2 in the original guideline document for information on common antiretroviral (ARV) side effects that may affect appetite and nutrition.

Viral Suppression

Clinicians should assess the ARV regimen of patients with poor growth and high viral load to ensure optimal efficacy of the ARV regimen.

Micronutrients

Clinicians should prescribe multivitamin and mineral supplements for HIV-infected children with growth problems but should be careful of the potential for overdose.

Clinicians should ensure that any micronutrient supplements that are used conform to the specific recommended dietary allowances (RDA) for age.

The clinician should obtain a history of use of over-the-counter supplements and herbal supplements.

Anabolic Agents

Anabolic agents should only be prescribed for children in consultation with a pediatric HIV specialist.

Neuroendocrine Disorders and Growth

In patients with unexplained growth failure, clinicians should obtain thyroid function tests.

Clinicians should refer patients to an endocrinologist when growth failure remains unexplained after initial evaluation or when the evaluation suggests an endocrine abnormality.

Association of Growth Abnormalities with gastrointestinal Infections and malabsorption

Clinicians should carefully screen HIV-infected children with poor growth for gastrointestinal infection and malabsorption.

When lactose and fat intolerance is suspected, the clinician should consult with a pediatric gastroenterologist for screening and diet adjustment.

Lipodystrophy and Abnormalities of Lipid Metabolism

Clinicians should screen serum cholesterol, triglycerides, low-density lipoprotein, and high-density lipoprotein in HIV-infected children initiating highly-active antiretroviral therapy (HAART) 3 to 6 months after initiation and approximately every 6 months thereafter. Abnormal results warrant repeat studies performed in the fasting state.

Refer to Table 3 in the original guideline document for classification of cholesterol levels in children and to the Table below for information on management of hypercholesterolemia in HIV-infected children and adolescents.

Management of HIV-infected Children with Abnormal Cholesterol

Clinicians should use dietary and behavioral interventions to manage HIV-infected children and adolescents with abnormal cholesterol. Monitoring and dietary

management should be in accordance with the guidelines published by the American Academy of Pediatrics (for adolescents, the Adult Acquired Immunodeficiency Syndrome [AIDS] Clinical Trials Group Preliminary Guidelines).

Clinicians should consider the use of pharmacologic interventions for patients with markedly abnormal cholesterol; however, there is the potential for drug-drug interactions, particularly between ARV agents and bile acid sequestering agents.

Clinicians should refer HIV-infected children with borderline or high cholesterol to a pediatric nutritionist or dietitian.

Management of Hypercholesterolemia in HIV-Infected Children and Adolescents

Fasting Low-Density Lipoprotein (LDL) Cholesterol Level (mg/dL)	Management
Acceptable LDL <110	• Education on healthy eating and on risk factors for coronary artery disease (CAD) • Repeat lipid panel in 1 year
Borderline LDL=110-129	• Education on risk factors for CAD • Initiate the American Heart Association Step-One diet (refer to Appendix E in the original guideline document) • Re-evaluate in 1 year
High LDL ≥130	• Examine for secondary causes of CAD, including renal, liver, and familial diseases • Screen family members for CAD • Initiate Step-One diet (refer to Appendix E in the original guideline document) • Follow up in 3 months. If still high, then initiate Step-Two diet (refer to Appendix E in the original guideline document)

Abnormalities of Glucose Metabolism

Clinicians should screen for risk factors for diabetes mellitus, including obesity and family history.

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence supporting the recommendations is not stated.

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate management of disturbances in growth, body composition, and metabolism in human immunodeficiency virus (HIV)-infected children and adolescents

POTENTIAL HARMS

Adverse Effects of Medications:

Micronutrient excess may cause harm:

- Iron overload is associated with more rapid human immunodeficiency virus (HIV) progression and may also contribute to risk of opportunistic infection and malignancy
- Antioxidant vitamins (vitamins A, E, C, and beta-carotene) and vitamin D may be harmful when taken in excess

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

Following the development and dissemination of guidelines, the next crucial steps are adoption and implementation. Once practitioners become familiar with the content of guidelines, they can then consider how to change the ways in which they take care of their patients. This may involve changing systems that are part of the office or clinic in which they practice. Changes may be implemented rapidly, especially when clear outcomes have been demonstrated to result from the new practice such as prescribing new medication regimens. In other cases, such as diagnostic screening or oral health delivery, however, barriers emerge which prevent effective implementation. Strategies to promote implementation, such as through quality of care monitoring or dissemination of best practices, are listed and illustrated in the companion document to the original guideline (HIV clinical practice guidelines, New York State Department of Health; 2003), which portrays New York's HIV Guidelines Program. The general implementation strategy is outlined below.

- Statement of purpose and goal to encourage adoption and implementation of guidelines into clinical practice by target audience
- Define target audience (providers, consumers, support service providers).
    - Are there groups within this audience that need to be identified and approached with different strategies (e.g., HIV Specialists, family practitioners, minority providers, professional groups, rural-based providers)?
- Define implementation methods.

        - What are the best methods to reach these specific groups (e.g., performance measurement consumer materials, media, conferences)?
- Determine appropriate implementation processes.
    - What steps need to be taken to make these activities happen?
    - What necessary processes are internal to the organization (e.g., coordination with colleagues, monitoring of activities)?
    - What necessary processes are external to the organization (e.g., meetings with external groups, conferences)?
    - Are there opinion leaders that can be identified from the target audience that can champion the topic and influence opinion?
- Monitor progress.
    - What is the flow of activities associated with the implementation process and which can be tracked to monitor the process?
- Evaluate.
    - Did the processes and strategies work? Were the guidelines implemented?
    - What could be improved in future endeavors?

IMPLEMENTATION TOOLS

Quick Reference Guides/Physician Guides

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

New York State Department of Health. Growth, body composition, and metabolism. New York (NY): New York State Department of Health; 2004. 25 p. [24 references]

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2004

GUIDELINE DEVELOPER(S)

New York State Department of Health - State/Local Government Agency [U.S.]

SOURCE(S) OF FUNDING

New York State Department of Health

GUIDELINE COMMITTEE

Committee for the Care of Children and Adolescents with HIV Infection

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Committee Chair: Jeffrey M. Birnbaum, MD, MPH, Assistant Professor of Pediatrics, SUNY Health Sciences Center at Downstate, Brooklyn, New York, Director, HEAT Program, Kings County Hospital

Committee Vice Chair: Geoffrey A. Weinberg, MD, Director, Pediatric HIV Program, Strong Memorial Hospital, Rochester, NY, Associate Professor of Pediatrics, Division of Infectious Diseases, University of Rochester School of Medicine and Dentistry

Committee Members: Jacobo Abadi, MD, Assistant Professor of Pediatrics, Albert Einstein College of Medicine, Bronx, New York, Jacobi Medical Center; Saroj S. Bakshi, MD, Associate Professor of Clinical Pediatrics, Albert Einstein College of Medicine, Bronx, New York, Chief, Division of Pediatric Infectious Diseases, Bronx-Lebanon Hospital Center; Howard J. Balbi, MD, Associate Professor of Pediatrics, SUNY at Stony Brook School of Medicine, Director, Pediatric Infectious Diseases, Good Samaritan Hospital Medical Center; Joseph S. Cervia, MD, Associate Professor of Clinical Medicine and Pediatrics, Albert Einstein College of Medicine, Bronx, New York, Director, The Comprehensive HIV Care and Research Center, Long Island Jewish Medical Center; Aracelis D. Fernandez, MD, Assistant Professor of Pediatrics, Albany Medical College; Ed Handelsman, MD, Assistant Professor of Pediatrics, SUNY Health Sciences Center at Downstate, Assistant Medical Director of Pediatrics, Office of the Medical Director, AIDS Institute; Sharon Nachman, MD, Chief, Pediatric Infectious Diseases, Professor of Pediatrics, SUNY at Stony Brook; Natalie Neu, MD, Assistant Professor of Pediatrics, Division of Pediatric Infectious Diseases, Columbia University; Catherine J. Painter, MD, PhD, Assistant Professor of Clinical Pediatrics, College of Physicians and Surgeons, Columbia University, New York, New York, Medical Director, Incarnation Children's Center; Roberto Posada, MD, Assistant Professor of Pediatrics, Division of Pediatric Infectious Diseases, Mount Sinai School of Medicine, New York, New York, Director, Pediatric HIV Program, Mount Sinai Hospital; Michael G. Rosenberg, MD, PhD, Associate Professor of Clinical Pediatrics, Albert Einstein College of Medicine, Bronx, New York, Pediatric Consultation Services, Jacobi Medical Center; Pauline Thomas, MD, Assistant Professor, Dept. of OB/GYN and Women's Health, Dept. of Preventive Medicine and Community Health, New Jersey Medical School; Barbara Warren,

BSN, MPH, PNP, Assistant Director, Bureau of HIV Ambulatory Care Services, AIDS Institute, New York State Department of Health

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available from the New York State Department of Health AIDS Institute Web site.

Print copies: Available from Office of the Medical Director, AIDS Institute, New York State Department of Health, 5 Penn Plaza, New York, NY 10001; Telephone: (212) 268-6108

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Growth, body composition, and metabolism. Tables and recommendations. New York (NY): New York State Department of Health; 2004 Mar.17 p. Electronic copies: Available from the New York State Department of Health AIDS Institute Web site.
- HIV clinical practice guidelines. New York (NY): New York State Department of Health; 2003. 36 p. Electronic copies: Available from the New York State Department of Health AIDS Institute Web site.

Print copies: Available from Office of the Medical Director, AIDS Institute, New York State Department of Health, 5 Penn Plaza, New York, NY 10001; Telephone: (212) 268-6108

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on January 13, 2005.

COPYRIGHT STATEMENT

DISCLAIMER

NGC DISCLAIMER

The National Guideline Clearinghouse™ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at http://www.guideline.gov/about/inclusion.aspx.

NGC, AHRQ, and its contractor ECRI make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.

Date Modified: 3/13/2006